Applicants wish to thank the Examiner for approval of the proposed drawing change in the formal drawing incorporating the approved drawing changes presented herein.

The Examiner has pointed out in error in dependency of claim 9. Again, Applicants wish to thank the Examiner for pointing out such and appropriate correction has been made.

The Examiner has previously rejected claims 20-23 because of the use of the word "transient." In the interest of clarity to the claims, Applicants have deleted the word "transient."

The Examiner has rejected claims 20, 21 and 23 under 35 U.S.C. § 112, ¶ 1 for containing subject matter which was not described in the specification. Applicants respectfully disagree with the rejection. Specifically, on page 13, line 25, Applicants have stated, "While the invention has been described in connection with a preferred embodiment, it is to be understood that it is not intended to limit the invention to that particular embodiment. On the contrary, it has endeavored to cover all embodiments, modifications and equivalents as may be included within the spirit and scope of the invention as encompassed by the description and as defined by the appended claims." Applicants' initial claims 2 and 3 discuss first materials and second materials. Applicants' in their specification talk about the first material in relationship to the second material having different levels of heat transfer resistance and different levels of adhesion with the aluminum of the engine block. Applicants initial and amended claims 1,2 and 3 are broader in scope than claim 20 and are fully supported by the specification. Accordingly, Applicants respectfully submit that claim 20 is fully supported by the specification and that the rejection under 35 U.S.C. § 112, ¶ 1 should be withdrawn.

As stated previously, claim 1 was rejected under 35 U.S.C. § 103 as being unpatentable over Palazzolo, et al., in view of Alkhimov, et al. in view of Shepherd. Applicants respectfully submit that their invention as defined by claim 1 as originally presented or as now presented in amended form, is not disclosed, suggested or taught by the Examiner's proposed combination of references.

Applicants respectfully submit that the Examiner has not given proper weight to the physical differences of Applicants' inventive method over that of the prior art. In support of those differences, Applicants present the following documents:

A. A declaration given by Dr. Sung Tsung-Yu Pan PhD, University of Michigan, Polymer Science and Engineering of his diligent search and failure to find an apparatus or method of gas dynamic cold spray lining mechanisms which hand fit within a cylinder between 3 ½ to 4 ½ inches. The significance of the 3 ½ to 4 ½ inches is that that is the dimensional range of most automotive vehicle engines from in line 4s and 6s to V-6s V-8s and V-10s and V-12s engines.

B. Applicants submit Exhibit 1 taken from the Internet from the Ktech Corporation which identifies on the last page the contribution and work of Dr. Anatollii Papyrin, PhD, a holder and an exclusive licensor of U.S. Patent 5,302,414 hereinbefore identified as Alkhimov, et al. Exhibit 2 is also taken from the Internet from the Ktech website and contains additional information relating to the nozzle. On page 3 of Exhibit 2, it states that the nozzle can have a smaller dimension of 2 mm. The second page of Exhibit 2, gives a picture of the feeding mechanism wherein it is abundantly clear that such a mechanism cannot be fitted within a conventional automotive engine cylinder. Submitted Exhibit 3 is a cold gas spraying unit provided by the University of the Federal Armed Forces Germany Department of Mechanical Engineering. Exhibit 3 clearly shows that the nozzle unit is of such a size that it cannot be fitted within a cylinder of a conventional automotive engine

Furthermore referring to Figure 1 of Alkhimov, et al and also referring to the specification column 10, lines 16-21 a ratio of the smaller dimension "b" to the length of the supersonic portion of the nozzle is 0.01 to .0.04. From Exhibit 2 it can be determined that the supersonic nozzle portion will be in the range of 50 - 200 cm or approx 1.95 - 7.8 inches. The nozzle must also include a subsonic portion which adds to its overall length. The spray gun of Alkhimov, et al also includes a lateral feeder mechanism. The resultant spray gun mechanism is far to large for insertion into a automotive engine cylinder bore. The above does not even include any spacing for the nozzle to disperse material from the spray gun. Accordingly a new spray gun mechanism had to be invented before applicants inventive method could be utilized.

Applicants in Figure 2 illustrate a method to cold gas spray a plurality of cylinders without the rotation of the cylinders. In fact rotation of the cylinders (and engine block) is physically impossible with insertion of two or more spray guns 4 within the engine block cylinders 2. As mentioned in the specification relative rotational movement between the spray guns and cylinders is undesirable. None of the cited references taken singularly or in combination teach or suggest a method of cold spraying a lining in a plurality of two or more

cylinder bores of a reciprocating piston internal combustion engine aluminum engine block with nozzles having unified up and down relative movement with the surfaces of the cylinder bores. Sheppard teaches rotation of the cylinder making it impossible to in a unified manner to coat a plurality of cylinders. The addition of Gorynin et al. would not overcome the failings of the proposed cited combination.

Applicants have shown that the Examiner's rejections are respectfully traversed. As the application is otherwise in condition for allowance, such action is respectfully requested.

Respectfully submitted,

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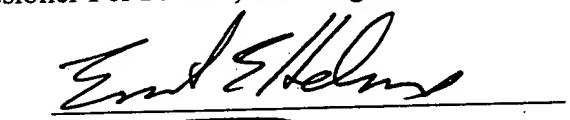
Dated: January 30, 2003

CERTIFICATE OF MAILING (CFR 1.8)

I hereby certify that the this AMENDMENT and proposed redlined drawing are being deposited with the United States Postal Service as postage prepaid first-class mail in an envelope addressed to Assistant Commissioner For Patents, Washington, D.C. 20231, on this 30th day of January, 2003.



~~Kristina L. Judge~~
Ernest E. Helms

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE DRAWINGS

A formal drawing incorporating the prior approved drawing change is presented herein.

IN THE CLAIMS

Claims 1, 7, 9 and 20 are amended as follows:

1. A method of lining a plurality of two or more cylinder bores of a reciprocating piston internal combustion engine aluminum engine block comprising:

spraying said cylinder bores with a gas-dynamic cold spray to coat said cylinder bore with a lining material differing from a material of said engine block, said spray coming from a nozzles having unified up and down relative movement with said engine block, and said nozzle being at an angle at 30° plus or minus 15° with a surface of said cylinder bores.

6. A method as described in claim 1, wherein said nozzles ~~is~~ are translated up and down through said cylinder bore.

7. A method as described in claim 1, wherein said nozzles ~~is~~ are positioned along a longitudinal center axis of said cylinder bores.

9. A method as described in claim ~~5~~ 1 wherein said cylinder bores is ~~are~~ coated in multiple passes.

20. A method as described in claim 1 further including initially coating said cylinder bores with a first material, and then coating said bores with a blend ~~of transient~~ gradient of said first material and a second material, and then coating said bore with said second material.

Please add new claim 24:

24. A method of lining a plurality of cylinder bores of a reciprocating piston internal combustion engine aluminum engine block comprising:

spraying said cylinder bores with a gas-dynamic cold spray to coat said cylinder bore with materials differing from a material of said engine block, said spray coming from nozzles having unified up and down relative movement with said engine block, and said nozzles being at an angle of 30° plus or minus 15° with surfaces of said cylinder bores, said method including initially coating said cylinder bores with a copper material, and then coating said bores with a blend gradient of copper and a wear material, and then coating said bores with said wear material.